REMARKS

INTRODUCTION

In accordance with the foregoing, no new matter is being presented, and approval and entry are respectfully requested.

Claims 10, 12-20, and 22 have been allowed. Allowable claims 2-9, 21, 23, 24, and 27-30 are rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Claims 1-30 are pending and under consideration. Reconsideration is respectfully requested.

OBJECTION OF CLAIMS 2-9, 21, 23, 24, AND 27-30

In the Office Action, on page 5, paragraph 12, the Examiner indicated that claims 2-9, 21, 23, 24, and 27-30 are allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2 has been rewritten in independent form and includes all of the limitations of base claim 1. Therefore, it is respectfully requested that amended claim 2 be allowed. Further, it is respectfully requested that claims 3-9, 21, 23, and 24 be allowed because the claims depend from amended claim 2 and patentably distinguish over the references relied upon by the Examiner for at least the reasons that claim 2 patentably distinguishes over the references relied upon by the Examiner.

Claim 27 has been rewritten in independent form and includes all of the limitations of base claim 11. Therefore, it is respectfully requested that amended claim 27 be allowed. Further, it is respectfully requested that claims 28-30 be allowed because the claims depend from amended claim 27 and patentably distinguish over the references relied upon by the Examine for at least the reasons that claim 27 patentably distinguishes over the references relied upon by the Examiner.

REJECTION OF CLAIMS 1, 11, 25, and 26 UNDER 35 U.S.C. § 102(e) AS BEING ANTICIPATED BY MATSUOKA (U.S. PATENT NO. 6,272,261)

In the Office Action, at page 2, claims 1, 11, 25, and 26 were rejected under 35 U.S.C. §102(e) as being anticipated by Matsuoka (U.S. Patent 6,272,261). This rejection is

traversed and reconsideration is requested. Independent claims 1, 11, 25, and 26 are amended and patentably distinguish over the references relied upon by the Examiner and are supported by the originally filed specification.

The reference relied upon by the Examiner, Matsuoka, provides an image processing device capable of performing high-resolution conversion or enlargement processing of partial images. In particular, Matsuoka discloses dividing data of a gray-scale original image into a plurality of images to be processed. Each partial image is then converted using a frequency conversion matrix and stored as coefficients in the matrix. Each stored partial image is then divided into additional domains (e.g., three domains from low frequency to high frequency, and three wedge-shaped domains). A mean value of the absolute values of the coefficients in each of the additional domains is calculated for each of the additional domains and temporarily stored as the mean coefficient for that domain. The temporarily stored mean coefficient for each additional domain is then inputted into a hierarchical neural network and an interpolation processing of the partial image is performed. Matsuoka, column 3, lines 15-67, column 4, lines 1-3.

Claims 1 and 11

Independent claim 1 of the Applicant's claimed invention, as amended, recites: "… an image signal divider dividing an image signal into a plurality of subblocks as original image data; and a generating unit generating parameters which determine cubic convolution interpolation coefficients in units of the divided subblocks, and performing cubic convolution interpolation on the original image data that is transmitted from the image signal divider." Thus, the generating unit generates parameters that determine cubic convolution interpolation coefficients in units of the subblocks divided by the image signal divider.

Matsuoka does not teach or suggest having an "image signal divider dividing an image signal into a plurality of subblocks as original image data; and a generating unit generating parameters which determine cubic convolution interpolation coefficients in units of the divided subblocks," as is recited in claim 1 of the present application. Instead, Matsuoka discloses *further* dividing the extracted image data (subblock) of an image signal into additional divisions or domains of data to be used to calculate/generate parameters for cubic convolution interpolation processing. Matsuoka, column 3, lines 22-37. Specifically, each partial image is converted using a frequency conversion matrix and stored as coefficients in the matrix. The

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stored partial images are then divided into additional domains (e.g., three domains from low frequency to high frequency, and three wedge-shaped domains). A mean value of the absolute values of the coefficients in each of the additional domains is calculated for each of the additional domains and temporarily stored as the mean coefficient for that domain. The temporarily stored mean coefficient for each additional domain is then inputted into a hierarchical neural network and an interpolation processing of the partial image is performed. Matsuoka, column 3, lines 15-67, column 4, lines 1-3. As such, Matsuoka does not disclose determining "cubic convolution interpolation coefficients in units of the divided subblocks" as divided by the image signal divider.

Therefore, for at least the reasons discussed above, it is respectfully submitted that independent claim 1 patentably distinguishes over the references relied upon by the Examiner.

Similarly, independent claim 11 of the present application, as amended, recites: "... dividing an image signal into a plurality of subblocks; and generating parameters which determine cubic convolution interpolation coefficients in units of the divided subblocks, and performing cubic convolution interpolation on the plurality of divided subblocks." Thus, parameters are generated that determine cubic convolution interpolation coefficients in units of the divided subblocks.

As discussed above with regard to independent claim 1, Matsuoka does not teach or suggest "generating parameters which determine cubic convolution interpolation coefficients in units of the divided subblocks, and performing cubic convolution interpolation on the plurality of divided subblocks," as is recited in claim 11 of the present application. Instead, Matsuoka discloses *further* dividing the extracted image data (subblock) of an image signal into additional divisions or domains of data to be used to calculate/generate parameters for cubic convolution interpolation processing. Matsuoka, column 3, lines 22-37. Therefore, for at least the reasons that claim 1 patentably distinguishes over the references relied upon by the Examiner, it is respectfully submitted that claim 11 patentably distinguishes over the references relied upon by the Examiner.

Claims 25 and 26

Independent claim 25 of the Applicant's claimed invention, as amended, recites: "... a generating unit generating parameters which determine interpolation coefficients of the image signal according to a forward scaling and a backward scaling of the image signal each of the

forward and backward scaling using a different scaling factor ..." Thus, the generating unit generates parameters that determine interpolation coefficients of the image signal according to a forward scaling and a backward scaling of the image signal.

Similarly, independent claim 26 of the present application, as amended, recites a method of "... generating parameters which determine interpolation coefficients of the image signal according to a forward scaling of the image signal and a backward scaling of the forward scaled image signal ... wherein a different scaling factor is respectively used for the forward scaling and the backward scaling."

As admitted by the Examiner on page 5, paragraph 14 of the Office Action, none of the prior art references teaches, or fairly suggests, having a forward scaling processor and a backward scaling processor to perform cubic convolution interpolation on the original image data, wherein each of the forward and backward scaling uses a different scaling factor. Therefore, for at least the foregoing reasons, it is respectfully submitted that claims 25 and 26 patentably distinguish over the references relied upon by the Examiner.

CONCLUSION

In accordance with the foregoing, claims 1-30 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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